

IN THE CLAIMS:

Please amend the claims as follows:

Claim 1 (Currently Amended): A back illuminated photodiode array comprising:

a first conductive type semiconductor substrate having a light-incident surface and an opposite surface with a plurality of recessed portions located opposite said light-incident surface;
and

a plurality of second conductive type semiconductor regions spatially detached at each bottom of said recessed portions;

wherein said semiconductor regions individually constitute pn junctions together with said semiconductor substrate, and

wherein the thickness of each recessed portion is thinner than the thickness of a portion around the recessed portion.

Claim 2 (Original): A back illuminated photodiode array according to claim 1,

wherein said semiconductor substrate regions between a plurality of said recessed portions constitute a frame part which is thicker than said recessed portions.

Claim 3 (Original): A back illuminated photodiode array according to claim 1,

wherein said semiconductor substrate is composed of a single semiconductor substrate.

Claim 4 (Original): A back illuminated photodiode array according to claim 1, wherein said semiconductor substrate is provided with a first semiconductor substrate having said light-incident surface and a second semiconductor substrate bonded to said first semiconductor substrate and having side walls of said recessed portions.

Claim 5 (Original): A back illuminated photodiode array according to claim 4, further comprising an etching stop layer existing between said first semiconductor substrate and said second semiconductor substrate and having resistance to a specific etching agent to be used for said second semiconductor substrate.

Claim 6 (Original): A back illuminated photodiode array according to claim 4, further comprising an insulation layer existing between said first semiconductor substrate and said second semiconductor substrate.

Claim 7 (Original): A back illuminated photodiode array according to claim 2, comprising a plurality of electrode pads formed on each top surface of said frame part and individually and electrically connected to said semiconductor regions.

Claim 8 (Original): A back illuminated photodiode array according to claim 7, further comprising:
an electric insulation layer formed on said frame part; and

a conductive member formed on said electric insulation layer and connecting electrically said semiconductor regions with said electrode pads.

Claim 9 (Original): A back illuminated photodiode array according to claim 8, wherein said electric insulation layer is provided with a contact hole for connecting an end of said conductive member to said semiconductor regions.

Claim 10 (Original): A back illuminated photodiode array according to claim 2, wherein said semiconductor regions extend from said bottoms to side surfaces of said recessed portions.

Claim 11 (Original): A back illuminated photodiode array according to claim 2, wherein said semiconductor regions extend from said bottoms over side surfaces of said recessed portions to a top surface of said frame part.

Claim 12 (Original): A back illuminated photodiode array according to claim 11, comprising:

an electric insulation layer formed on said frame part and having a contact hole opposing said top surface; and

electrode pads electrically connected to said semiconductor regions through said contact hole.

Claim 13 (Original): A back illuminated photodiode array according to claim 2, wherein said frame part is provided with a first conductive type separation region higher in impurity concentration than said semiconductor substrate.

Claim 14 (Original): A back illuminated photodiode array according to claim 1 wherein an opening size of said recessed portions decreases with an increase in the depth of said recessed portions.

Claim 15 (Original): A back illuminated photodiode array according to claim 1, wherein said light-incident surface side of said semiconductor substrate is provided with a first conductive type accumulation layer which is higher in impurity concentration than said semiconductor substrate.

Claim 16 (Original): A back illuminated photodiode array according to claim 4, wherein mutually opposing surfaces of said first semiconductor substrate and said second semiconductor substrate are different in their crystal plane orientation.

Claims 17-25 (Withdrawn).